REMARKS

This Amendment is made in response to the Final Office Action mailed December 19, 2005 and the Advisory Action mailed March 14, 2006. In that Office Action, the Examiner rejected claims 9-20 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. However, only seven claims (9-15) were pending in the case at that time. Applicant assumes this was a typographical error. Claims 9 and 15 were further rejected under §112, second paragraph as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. Claims 10-14 were rejected because of their dependency upon claim 9.

Claims 9, 10, and 13 were rejected under 35 U.S.C. §103(a) as being unpatentable over Zou et al., U.S. patent No. 6,186,649 ("Zou"). Claims 11, 12, and 14 were rejected under 35 U.S.C. §103(a) as being unpatentable over Zou and further in view of Applicant's admitted prior art. Claim 15 was rejected under 35 U.S.C. §103(a) as being unpatentable over Zou.

In the March 14, 2006 Advisory Action, the Examiner indicated that independent claim 9 does not clearly disclose the structural relationship between the claimed gate angle, the thin film substrate, and the sphere. The Examiner added that regarding independent claim 15, it is not clear as to the relationship between the thin film and the series of light.

With this Response, claims 1-8 have been cancelled, claims 9 and 15 have been amended and claims 16-30 have been added. Claims 9-30 remain pending in the application and are presented for reconsideration and allowance.

December 19, 2005 Final Office Action – 35 U.S.C. §112, Second Paragraph, Rejections

On page 2 of the Office Action, the Examiner rejected all claims under 35 U.S.C. §112, second paragraph. The Examiner indicated that independent claims 9 and 15 were rejected as being incomplete for omitting essential elements.

Applicant respectfully disagrees with the Examiner's assertion that there are omitted elements in independent claims 9 and 15. Further, Applicant respectfully disagrees with the Examiner's assertion that the term "angle gate" is not clearly defined in the specification. However, in an effort to further clarify the claimed invention, independent claims 9 and 15 have been amended such that the symbol "Θ_{GATE}" has been inserted in independent claims 9 and 15 after each occurrence of the phrase "gate angle". No new matter has been added to the claims with the present amendment, and no new search is required. The gate angle (Θ_{GATE}) is clearly defined in the present specification, specifically at page 4, lines 9-19.

With reference to the Examiner's assertion that there are omitted elements of independent claims 9 and 15, Applicant asserts that all elements are spatially connected to each other such that there is no omission amounting to a gap between the elements.

It is believed that there is proper antecedent basis for all claimed elements, and that there is no omission or gap between the claimed elements or steps. Therefore, Applicant respectfully requests that the rejection of claims 9-15 under 35 U.S.C. §112, second paragraph, be withdrawn.

December 19, 2005 Final Office Action – 35 U.S.C. §103 Rejections

On pages 2-5 of the December 19, 2005 Final Office Action, the Examiner rejected claims 9-15 under 35 U.S.C. §103(a) as being unpatentable over Zou.

Applicant respectfully disagrees with the Examiner's summation as to the disclosure within Zou. Specifically, Zou does not disclose a thin film coating in connection with substrate 418, nor does Zou disclose a gate angle (Θ_{GATE}) of a thin film coating. With reference to a thin film coating in connection with a transmissive substrate, Zou states "some of the light undergoes reflections from the inner surface of side walls 420 and 422 and from the inner surface of the optional side walls 434 and 436. The reflections may occur by TIR if the side walls 420, 422, 434, and 436 are uncoated or may occur by normal reflection if the side walls are coated with a reflective

coating." The reflective coating of Zou is not used in conjunction with input surface 418, which the Examiner cites as disclosure of a transmissive substrate. Rather, the reflective coating is disclosed in connection with side walls 420, 422, 434, and 436, none of which are transmissive substrates permitting transmission of light, as claimed. Thus, Zou does not disclose a thin film coating positioned on a transmissive substrate through which some light transmissions are provided, while other light transmissions are reflected back from the transmissive substrate, as claimed.

With reference to an angle gate (Θ_{GATE}), Zou does not disclose a thin film coating including a gate angle (Θ_{GATE}) such that light transmissions striking the thin film coating at an angle of incidence less than or equal to the gate angle (Θ_{GATE}) transmits through the thin film, while light transmissions striking the thin film coating at an angle of incidence greater than the gate angle (Θ_{GATE}) reflects back from the thin film, as claimed in both independent claims 9 and 15. Rather, Zou discloses input surface 418 which permits any and all light transmissions to pass through. No light transmissions are reflected back. Additionally, Zou does not disclose a gate angle of a thin film coating or disclose a thin film coating positioned on a transmissive substrate. Clearly, Zou does not disclose the claimed invention since Zou does not discuss a thin film or a thin film coating positioned on a transmissive substrate such that the thin film or thin film coating includes a gate angle (Θ_{GATE}). There is no mention in Zou of any gate angle (Θ_{GATE}).

Applicant respectfully requests that the rejection of independent claims 9 and 15 under 35 U.S.C. §103 with withdrawn. In addition, dependent claims 10-14 depend from independent claim 9. Since it is believed that independent claim 9 is distinguishable over the cited art of record, it is also believed that dependent claims 10-14 are patentable over the cited prior art of record. Therefore, it is respectfully requested that the rejection of all claims under 35 U.S.C. §103 be withdrawn.

March 14, 2006 Advisory Action

On page 2 of the Advisory Action, the Examiner indicated that independent claim 9, as amended, still does not clearly disclose the structural relationship between the

claimed gate angle, thin film substrate, and sphere. In addition, the Examiner indicated that regarding claim 15 it is still not clear how the thin film relates to the series of light.

With this Amendment, independent claims 9 and 15 have been amended to clearly disclose the structural relationship between all claimed elements. It is believed that there is proper structural relationship between all claimed elements in independent claims 9 and 15, as well as a clear relationship between all claimed elements in independent claims 9 and 15. Therefore, Applicant respectfully requests that independent claims 9 and 15, and all claims depending therefrom, be allowed.

Newly Presented Claims 16-30

New claims 16-30 are analogous to claims 9-15 in scope, and are consistent with the elected group from the Examiner's prior restriction requirement. Applicant believes that new claims 16-30 are fully supported by the specification as required by 35 U.S.C. §112. No new matter is added. Examination and the subsequent allowance of claims 16-30 is respectfully requested.

Applicant respectfully asserts that new claims 16-30 are not anticipated by, and are not obvious in view of, the three references cited earlier in the prosecution of this application whether those references are considered alone or in combination with one another. These references are: U.S. Patent No. 6,186,649 ("Zou"), U.S. Patent No. 6,299,328 ("Wilson") and U.S. Patent No. 6,759,814 ("Vogel").

With respect to the Zou reference, it is submitted that not all the elements of independent claims 16, 23 and 30 are disclosed by Zou and that therefore Zou does not anticipate independent claims 16, 23 and 30. Furthermore, it is submitted that not all the elements of independent claims 16, 23 and 30 are taught or suggested by Zou and that therefore independent claims 16, 23 and 30 are not obvious in view of Zou.

Zou is directed to a linear light source that supplies light to a narrow strip of area, such as a photocopier. (column 1, lines 27-30) A source, such as a fluorescent tube, is largely surrounded by a reflective enclosure having a slit opening along its long dimension, through which light emerges. Zou discloses placing an optical element at

the opening of the reflective enclosure, such as "a cylindrical rod lens, a lenticular lens, an aspherical lenticular lens, a lenticular prism, an array of lenticular lenses, and array of lenticular prisms, a mirror, a reflecting concentrator, or a waveguide". (column 3, lines 36-42) Each of the optical elements discloses by Zou directs light outward, out of the reflective enclosure. The elements can shape or bend the beams once they emerge from the reflective enclosure, but none of the elements in Zou reflects any light back into the reflective enclosure. Because Zou teaches only the light moving outward from the reflective enclosure, there would be no motivation to add an optical element in which a portion of the incident light would be reflected back into the reflective enclosure, such as "a thin film filter [that] is transmissive for incident angles less than a gate angle and reflective for incident angles greater than the gate angle", as recited by new independent claims 16, 23 and 30. For at least these reasons, it is believed that claims 16-30 are patentable over the Zou reference.

The disclosures of Wilson are similar to those of Zou; note that FIGS. 1-18 in both patents are identical. One additional embodiment in Wilson that is not in Zou is a housing that contains the reflective enclosure, and a snap-in channel that can support a rod lens (see FIGS. 19 and 20). Because this reference teaches nothing more than a structure that facilitates the assembly of a transmissive optical element with the slit or aperture of the reflective enclosure and does not teach or suggest the use of a reflective optical element of any kind, Wilson does not anticipate independent claims 16, 23, and 30 or the claims dependent therefrom. What is more, because the additional embodiment described by Wilson does not remedy the deficiencies of Zou described above, i.e. does not teach or suggest adding "a thin film filter [that] is transmissive for incident angles less than a gate angle and reflective for incident angles greater than the gate angle", it is submitted that the combination of Zou and Wilson does not teach or suggest all the elements of independent claims 16, 23 and 30, which are believed to be patentable over the combination of Zou and Wilson.

The third reference cited previously in this case, Vogel, is directed to an illuminator system for providing accurate color content. The light from several LEDs

enters an integrating sphere, and leaves the integrating sphere at an exit port (element 18 in FIG. 2). The integrating sphere spatially scrambles the beams from the various LEDs so that the beams are essentially uniformly superimposed when they leave the integrating sphere. The primary object of Vogel is spectral in nature, and Vogel makes no mention of spatially conditioning the emergent beams; the spatially uniform beams that emerge unaided through the exit port are sufficient to Vogel's purpose. In other words, Vogel teaches an exit aperture that is empty; there is no optical element or filter that might direct, apportion, or reflect any portion of the light exiting from exit port 18. Clearly, Vogel does not teach all of the elements of independent claims 16, 23 and 30. And, as there is no teaching or suggestion of including anything at all in the exit port 18, Vogel adds nothing to the disclosures made in Zou and Wilson.

Applicant respectfully submits that Vogel, when taken alone or in combination with Zou and/or Wilson does not fairly teach or suggest "a thin film filter [that] is transmissive for incident angles less than a gate angle and reflective for incident angles greater than the gate angle", as recited by independent claims 16, 23 and 30.

As dependent claims 17-22 and 24-29 depend from independent claims 16 and 23, respectively, it is submitted that these claims are patentable over the Zou, Wilson and Vogel references for at least those reasons put forth in support of claims 16, 23 and 30 above. Applicant respectfully requests examination and allowance of new claims 16-30.

CONCLUSION

In view of the above, Applicant respectfully submits that claims 9-30 are in form for allowance and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of claims 9-30 is respectfully requested.

Applicants hereby authorize the Commissioner for Patents to charge Deposit Account No. 50-0471 in the amounts of $500.00 (to cover additional claim fees under 37 C.F.R. 1.16(h) and (i)); $120.00 (to cover the extension fee as set forth under 37 C.F.R.

§1.17(a)); and $790.00 (to cover the fee as set forth under 37 C.F.R. §§1.17(e) and 1.114).

The Examiner is invited to contact the Applicant's representative at the below-listed telephone numbers to facilitate prosecution of this application.

Any inquiry regarding this Amendment and Response should be directed to Michael R. Binzak at Telephone No. (612) 573-0427, Facsimile No. (612) 573-2005. In addition, all correspondence should continue to be directed to the following address:

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CERTIFICATE UNDER 37 C.F.R. 1.8:

The undersigned hereby certifies that this paper or papers, as described herein, are being transmitted via telefacsimile to Examiner John A. Ward of Group Art Unit 2875, Fax No. (571) 273-8300 on this 19th day of April, 2006.

By:
Name: Michael R. Binzak